Technological Learning Project

South Middle School
Nampa School District #131

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Abstract

"Next generation learning isn't about educating the next generation of students. It's about engaging with today's students through "next gen" teaching and learning designs that promise significantly higher achievement for many more students than current-generation approaches have been able to generate" (Calkins & Vogt, 2013, p. 1).

South Middle School (SMS) is in the process of redesigning student's learning experiences to encompass the growing needs of today's learners. SMS will utilize the innovative concept of "flipping the classroom" by making instruction deeply personalized and student centered through the use of iPads, Apple TV, projectors, iPad stands, and Swvl Robot technology.

The spirit of innovation which is present in the high quality teacher/student interactions and next generation learning experiences designed by staff at SMS are the cornerstones of the Technological Learning Project or TLP. Staff at SMS have committed to providing a system wide professional learning community redesign which focuses on the rigor demanded by the Idaho Core standards and current NSD educational model.

TLP relies on four key strategies:

- technological training of highly qualified, certified staff and creation of Open Educational Resources (OER)
- access to high-quality digital content with real-time feedback
- scaffolding key concepts for students with individualized instruction
- building opportunities for students and parents to easily access key learning concepts at home or at school during extended hours

SMS has partnered with Northwest Nazarene University (NNU) to provide devices, Kahn Academy, and Measures of Academic Progress or MAPS testing for students. After research and consideration iPad devices and Apple TV were selected based on critical factors of; portability, price, ease of setup and use, student /teacher interactivity, access to educational materials and libraries, and ability to use cloud computing and studying.

Swvl robots were selected for SMS as an innovative way to bring the teacher to students and families in a non-traditional inclusive manner. Teachers will utilize robots through recording classroom instruction of key concepts and components and making educational lessons available on the web in a free format or OER. Teachers will also use pre-recorded lessons to "flip the classroom" and give one on one or personalized instruction to each student through the use of iPad or Apple TV technology in conjunction with Epson projectors with 16 watt speakers with the capacity to fill the room with sound. iPad technology enables the teacher to monitor student understanding in real time learning environments in conjunction with the use of Idaho's Schoolnet program and successfully implement connected teaching and collaboration school-wide.

Educational Needs

SMS currently serves a diverse student population of 878 students with 31% of the student population belonging to a race other than white, and 57% of students receiving free or reduced lunch. Based on current years testing data SMS is underperforming in the area of mathematics with only 47% of students scoring proficient on Winter 2013-2014 MAP assessment. Data for language was not available for 2013-2014.

SMS Areas of Proficiency		2011-2012 Proficiency	2012-2013 Proficiency	Winter 2013-2014 Proficiency
ISAT Language	All Students	**72.10%**	**69.60%**	
	White Students	76.23%	73.83%	
	Hispanic/Other Students	57.43%	52.10%	
	Students with Disabilities	9.77%	14.43%	
	Economically Disadvantaged	61.93%	56.63%	
ISAT Math	All Students	**76.47%**	**75.63%**	
	White Students	80.27%	70.47%	
	Hispanic/Other Students	64.70%	65.33%	
	Students with Disabilities	17.33%	20.60%	
	Economically Disadvantaged	69.47%	68.50%	
MAP Math	All Students			**47.10%**
	White Students			
	Hispanic/Other Students			
	Students with Disabilities			
	Economically Disadvantaged			

Figure 1. SMS Areas of Proficiency

With the implementation of Smarter Balanced Assessment (SBAC), students and teachers are now using the new, more rigorous Idaho Core Standards. SMS now faces an even higher gap between student achievement and educational expectations.

Technology use in the classroom varies widely throughout SMS. Currently SMS has 5 hardwired computer labs, operating outdated computers and software, and the majority of math and science teachers have document cameras. Individual teachers on a limited basis have purchased personal iPads and mobile technology in an effort to bridge the technology gap now existing within the school. The computer to student ratio is currently 5.9:1 using outdated desktop PC's which are not located within the classrooms. A technology gap does exist in all classrooms of SMS which does not allow for access to high-quality digital content with real-time feedback.

Based on the needs of SMS, Nampa School District's small scale pilot project, and assessment data, funding for TLP will allow SMS to implement:

1. Technological Training of Highly Qualified, Certified Staff: staff will complete a year long unit of study led by TLP Project Coordinator, earn professional development credits through Northwest Nazarene University, construct a content level TLP unit based on Idaho Core standards.
2. Access to High-Quality Digital Content with Real-Time Feedback: students and staff will have access to iPad mobile technology through the use of 3 mobile learning carts per grade level. iPad technology will be used in conjunction with

Discovery Learning and Idaho's Schoolnet program which will also be used to give staff immediate feedback within the RTI model.

3. Scaffolding Key Concepts for Students with Individualized Instruction: Apple TV, iPad, and Swvl Robot technology will be used in *every* classroom at SMS. Teachers will utilize the pre-record feature and provide individualized instruction to students who require extra support.
4. Building Opportunities for Students and Parents to Access Key Learning Concepts: at home or at school during extended hours. 20 iPad 4G-LTE models will be available for student check out from school on a nightly basis. Preference will be given to students who are receiving interventions, are going through the RTI process, or have large projects due. In addition to 4G-LTE check out models, SMS will open one "lab" using iPad mobile technology for evening hours 3 nights a week. Evening lab hours will be staffed by certified school personnel. Students and parents will have access to internet, iPad's, Office 365, Power School, and Kahn Academy during evening hours.

Goals

Goals and measureable objectives for student achievement for the next two years will be based on continued online MAP testing, STAR Assessments, and use of Kahn Academy. MAP testing data will be based of data from Winter 2013 and a baseline for each student using Kahn Academy and STAR Assessments will be taken in the fall of the 2014 school year.

1. Parent and Student access to technology will increase.
2. Student Achievement in Math will increase.
3. Student Achievement in Language Arts will increase based on baseline data taken from STAR Assessment in Fall 2014.
4. Teacher use of technology will change from record keeping to including routine content instruction and integrated into content delivery through the use of TLP devices.
    a. Each teacher will construct a TLP unit of study based on Idaho Core Standards using and creating "Open Educational Resources" (OER).
    b. Each teacher will complete 2 credit hours of technology based study through NNU.
    c. Teachers will create and upload OER to school and individual web pages.
    d. Building level professional learning community will assess effectiveness of TLP strategies, stages, and implementation.

Project Scope and Sequence

Planning
SMS is committed to implementing a successful integrated learning experience for its students, teachers, and parents. SMS has tested various facets of the multipoint plan in individual teacher classrooms on campus. These teacher driven, primary test runs have been used to formulate the final project plan. High quality teacher/student interactions and next generation learning experiences are the cornerstones of the Technological Learning Project (TLP).

We believe:

- Next Generation Learning accelerates educational innovation through applied technology to dramatically improve college readiness and completion in the United States ("Guiding Principles: NextGen Learning", 2014, p. 01).
- Education should be learner-centered.
- Students should be actively engaged in rigorous learning experiences.
- Instructor commitment, knowledge, and experience are vital to student success.
- Technology is an integral part of students' lives, expectations, and futures.
- Technology does not replace but instead augments sound teaching practices.
- Open Educational Resources (OER) allow sharing of information and maximize options available to learners and educators.
- Data can support learners and educators in the successful design and implementation of learning environments.

Key ideas taken from ("Guiding Principles: NextGen Learning", 2014, p. 01).

Involvement
SMS staff pledges 100% involvement in TLP training and implementation of technology based learning. Students will complete classroom training sessions and activities utilizing iPad mobile technology labs or "carts" and navigate the revised and updated SMS website with lessons and information. Parents will have access to the school website and teacher pages at home through the internet or during tri-weekly evening hours on site at SMS.

Preparation
SMS staff will complete 2 days of TLP training sessions before the initial rollout of student devices and an additional 2 days of TLP training to be spread throughout the regular school year. TLP project coordinator, TLP Integration Specialist and District Technology Coordinator will facilitate and plan teacher training sessions which will occur before school starts. TLP coordinator and trainer will implement lessons and activities for teacher competency using iPad, Swvl robot, Apple TV, projectors, iPad stands, along with educational apps to support curriculum.

Staff will receive professional development training on how to facilitate classroom management of student devices and digital citizenship. TLP coordinator will ensure successful setup and training of staff on use and care of TLP technology as well as maintain accurate records of equipment damage, breakage, and loss.

Implementation

SMS will utilize the connected teaching methodology. Connected teaching as defined by the U.S. Dept. of Education as “teaching, (where) classroom educators are fully instrumented, with 24/7 access to data about student learning and analytic tools that help them act on the insights the data provide. They are connected to their students and to professional content, resources, and systems that empower them to create, manage, and assess engaging and relevant learning experiences for students both in and out of school. They also are connected to resources and expertise that improve their own instructional practices, continually add to their competencies and expertise, and guide them in becoming facilitators and collaborators in their students' increasingly self-directed learning”(U.S. Dept. of Education, p. 01).

The TLP director will implement and manage staff training dates and provide time within the schedule for trainings and discussions. The TLP coordinator will ensure all teachers receive high quality information, practice, and feedback upon daily usage of TLP utilities. Eight half day training sessions will begin in August 2014. Initial training for teachers will include basic navigation and usage of iPad features and will immediately extend into teachers integrating TLP into daily lesson plans on a limited basis. Teachers will then meet to check in on progress toward final program goals as well as troubleshoot problems and participate in the TLP professional learning community, which is a collaborative community between all TLP staff and stakeholders.

Teachers and Staff will complete 2 credit hours of professional development throughout the school year on how to successfully connect iPad, Apple TV, projector, iPad stand, and Swvl Robot technology into daily integrated lessons. Teachers will construct a content specific unit plan which fully implements TLP strategies and technology by the end of TLP year 2.

Timeline

South Middle School

2014-2015								
Summer 2014			**Year 1 Quarter 1**			**Year 1 Quarter 2**		
Item	Leading Party	Action	Item	Leading Party	Action	Item	Leading Party	Action
ITPG Grant Awarded	Idaho SDE	Notify District	Professional Development: LT, BA	IS, BA	TLP Goals, iPad Air Basics, Office 365, Swvl Robot Intro, Web Page Management	Professional Development: LT	IS, BA	Student Use of iPad
ITPG Funds Available	NSD Tech. Coordinator	Order: computers, software, hardware	Professional Development: FS	IS, BA, LT	TLP Goals, iPad Air Basics, Office 365, Swvl Robot Intro, Web Page Management	Professional Development: FS	IS, BA, LT	Student Use of iPad
Building Installation WAP	NSD Tech. Coord.	Complete Building Setup for TLP	Professional Development: LT	IS, BA	TLP iPad/apps, building a TLP lesson	Technology Use for Students	FS	Student conduct and use of iPad training for students
Format Hardware/ Software	NSD Tech. Coord.	Outsourced to provide services	Professional Development: FS	IS, BA, LT	TLP iPad/apps, building a TLP lesson	Staff PD	TLP IS, BA, LT, Full Staff (FS)	TLP iPad/apps, building a TLP lesson
			Evening Hours Lab	IS, BA, EHS	iPad Lab available for parent/student use after hours			
Year 1 Q3/Q4			**Year 2 Semester 1**			**Year 2 Semester 2**		
Item	Leading Party	Action	Item	Responsible Party	Action	Item	Leading Party	Action
Staff PD	TLP IS, BA, LT, Full Staff (FS)	TLP iPad/apps, building a TLP Unit	Staff PD	TLP IS, BA, LT, Full Staff (FS)	TLP iPad/apps, building a TLP Unit	Staff PD	TLP IS, BA, LT, Full Staff (FS)	TLP iPad/apps, building a TLP Unit

Key TLP :Technological Learning Project IS: Integration Specialist LT: Technology Lead Teachers

PD: Professional Development BA: Building Administration FS: Full Staff

ST: Students EHS: Evening Hours Staff

Figure 3. TLP Timeline

Evaluation

TLP evaluation of project goals and student achievement are based on qualitative and quantitative measures. Student learning and increased scores on MAP and STAR testing, staff survey ratings, and parent survey ratings as well as checklist of obtained goals will be used in determine project success throughout the two year implementation period and determine project adjustments as needed.

Sustainability and Scalability

Nampa School District (NSD) believes TLP to be financially sustainable for districts across Idaho. The projected per pupil cost is significantly higher in year one due to initial installation of network and purchase of all devices. Based on a steady student population of 880 students, year one cost per student is $524.70. Year two cost per student drops to $132.77. In subsequent years, cost per student continues to drop nearing $15.00 during years when new devices are not required. Cost per student is less than $65.00 during device replacement years. During replacement years approximately one-fourth of all devices will be replaced on a rotating cycle. By selecting iPad devices for use with TLP districts are able to purchase dependable student and teacher devices with a lifespan of four to six years. In addition to a long lifespan in terms of technology iPad devices fully integrate into school and classroom settings through the use of educational apps and cloud technologies.

NSD has shown a commitment to making TLP succeed by aiding in improving the school technology infrastructure to accommodate the increased demands on the system TLP will create. NSD is currently in the process of installing 50 new teacher desktop computers at SMS and is upgrading to a fiber-optic Wide Area Network (WAN) to increase bandwidth to 1 Gig within the school. NSD will also provide each member of staff and all SMS students with Microsoft Office 365 web based accounts as well as training on their use.

TLP utilized current research from Pepperdine University and the U.S. Department of Education to create cutting edge technology use systems instead of the more standard 1:1 model being used in schools across the nation. The key factor to the success of iPad use in the classroom is teacher training and familiarity/comfort with the device and apps the educator is utilizing (Pepperdine University, 2012, p. 4). By focusing on staff training through the use of professional learning communities, university classes, real-time collaboration during day to day operations and extended time for staff learning, TLP ensures teachers become proficient information specialists in today's global learning environment.

TLP goes beyond typical 1:1 device use by using devices to "flip the classroom" and puts learning and instruction in the hands of students and their families. Teachers will facilitate instruction through the use of iPad and Swvl Robot technology.

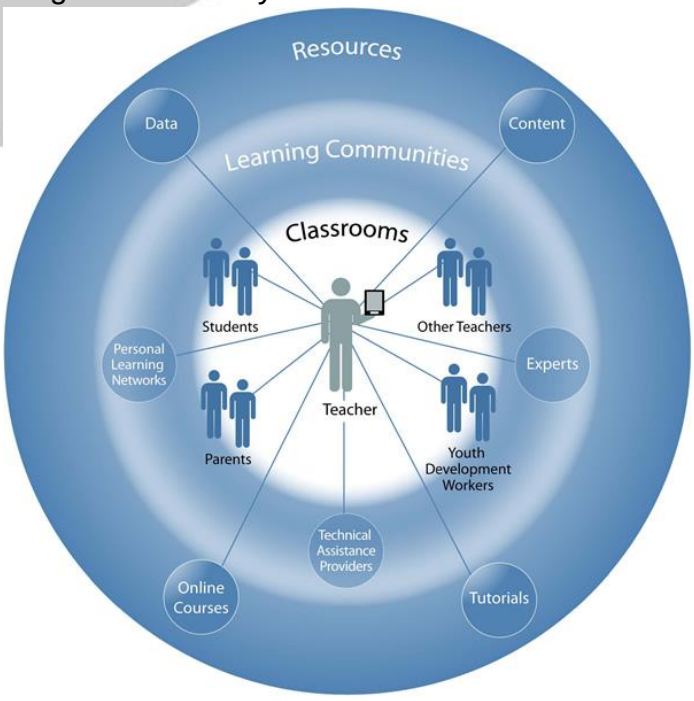

Figure 3. Connected Teaching Builds New Competencies and Expertise

Swivl Robots allow teachers to pre-record key components of instruction to be accessed by students before or during class using iPad devices. Students can re-watch these components as many or as few times as needed while the teacher circulates to answer student questions and give more individualized instruction. Lessons will be available on school and teacher webpages for students and families to access as needed.

In addition to Swvl Robot and iPad technology, TLP fully integrates the use of newer classroom projector systems in conjunction with Apple TV. This pairing allows teachers to control what students are hearing and viewing from any area of the classroom. Projectors were selected based on price and presence of an onboard speaker system which allows for full range of sound within the classroom and eliminates the need for additional speaker systems.

Professional Development (PD) is essential to the success of TLP. Staff and teachers will be provided time, resources, classes, and feedback regarding the implementation and use of TLP resources. Teachers will complete two, two credit classes through NNU's Professional Development Center which will be led by TLP's Integration Specialist and Program Administrator.

TLP also focuses on student training on use and purpose of iPad devices in an educational setting, "The iPad needs to have a purpose in the classroom and students need to know the purpose" (Hoover & Valencia, 2011, p. 10). Teachers will be trained on how to successfully implement all purchased technology in daily classroom use and students will receive training on appropriate use of TLP resources and their role in maximizing device effectiveness.

TLP data and resources will be available to other districts in Idaho online through the SMS webpage as well as teacher lessons and OER for all major content areas.

Budget Narrative

SMS is requesting $578,579.90 as a total project budget for TLP. Monies spent fully support overall TLP goals through the purchase of high quality devices and hardware as well as provide funding for full staff professional development for two years.

Throughout the overall project, funds are distributed in the following disbursements: 35% computer devices, 27% implementation staff, 11% on hardware (projectors, Apple TV, iPad charging cart stations, Swvl Robot, and wireless access points), 9% on installation services through an outside contractor, 8% on training, and 10% on software for devices.

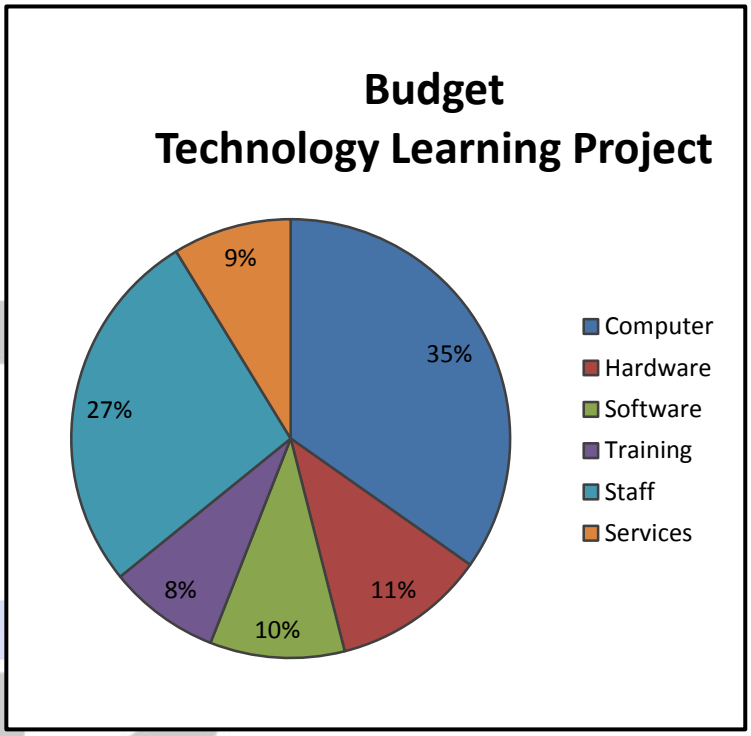

Figure 4. TLP Budget Areas of Allocation

Year one TLP budget includes $61,739.90 for all areas averaging $524.70 per student and year two including $116, 840.00 averaging $132.77 per student. The total two year program cost is $328.74 per student. Year three drops the per student cost to around $15 which is a manageable cost for districts.

To support TLP use in all areas of student learning, improvements to existing building infrastructure are necessary. Thirty-three Wireless Access Points (WAP) will need to be installed at a cost of $400 each.

The grant will also fund staff to monitor an after-hours technology lab on site at SMS to provide parents and students opportunities to interact with TLP devices and services. In addition to an after-hours lab, twenty devices will be available for students check out for SMS with priority given to students being monitored with the RTI process.

Idaho SDE Technology grant money will fund two years of ongoing Professional Development for staff which will include classes from NNU, lead teacher training, team collaboration and training time as well as full staff training. To compensate SMS staff for outside hours dedicated to TLP implementation during non-contract days and hours, has been requested.

Budget Spreadsheet

SMS Technology Learning Project Budget

Date Wanted	Item	Category	Quantity	cost/unit	Total
8/1/2014	iPad air	Computer	50	$499.00	$24,950.00
8/1/2014	Clam Case w/keyboard	Computer	50	$169.00	$8,450.00
8/1/2014	stylus	Computer	50	$10.00	$500.00
8/10/2014	iPad w/Retina	Computer	375	$399.00	$149,625.00
8/10/2014	iPad keyboard	Computer	80	$59.00	$4,720.00
8/10/2014	iPad 4G-LTE w/ e-rate able plan	Computer	20	$529.99	$10,599.80
8/10/2014	Short Throw Projector	Hardware	2	$1,050.00	$2,100.00
8/10/2014	Apple TV	Hardware	50	$99.00	$4,950.00
8/10/2014	Epson Projector	Hardware	50	$489.00	$24,450.00
8/10/2014	doc stand	Hardware	50	$138.00	$6,900.00
9/10/2014	iPad cart	Hardware	10	$949.00	$9,490.00
8/10/2014	Swivl Robot	Hardware	12	$289.00	$3,468.00
7/15/2014	AP	Hardware	33	$400.00	$13,200.00
9/10/2014	student apps 20 per iPad	Software	395	$20.00	$7,900.00
8/10/2014	teacher apps	Software	50	$20.00	$1,000.00
9/10/2014	e-rate able device contract	Software	20	$432.00	$8,640.00
9/10/2014	student Office for iPad	Software	290	$79.99	$23,197.10
8/1/2014	PD -Subs 45*4 days	Training	180	$75.00	$13,500.00
8/1/2014	Lead teacher stipends Year 1	Training	5	$850.00	$4,250.00
9/1/2014	Teacher Stipends	Training	45	$130.00	$5,850.00
9/1/2014	2 Credits	Training	100	$65.00	$6,500.00
8/1/2014	Integration Specialist 50,000	Staff	1	$67,500.00	$67,500.00
9/1/2014	Parent Involvement	Staff	1	$10,000.00	$10,000.00
8/1/2014	Device Installation	Services	1	$50,000.00	$50,000.00
8/1/2015	Teacher apps	Software	50	$10.00	$500.00
9/10/2015	student apps	Software	685	$10.00	$6,850.00
8/10/2015	e-rate able device contract	Software	20	$432.00	$8,640.00
8/1/2015	PD -Subs 45*2 days	Training	90	$75.00	$6,750.00
8/1/2015	Lead teacher stipends Year 2	Training	5	$850.00	$4,250.00
9/1/2015	Teacher Stipends	Training	45	$130.00	$5,850.00
9/1/2015	2 Credits	Training	100	$65.00	$6,500.00
~~8/1/2015~~	~~Integration Specialist 50,000~~	~~Staff~~	~~1~~	~~$67,500.00~~	~~$67,500.00~~
8/1/2015	Integration Specialist update	Staff	1	$5,539.46	$5,539.46
9/1/2015	Parent Involvement	Staff	1	$10,000.00	$10,000.00
	Y1 Cost/Student (880)	$524.70		Year 1	$461,739.90
	Y2 Cost/Student (880)	*$62.36**		Year 2	$54,879.46*
		Average	*$293.5**	***Requested***	***$516,619.36****

**Adjusted value based on removal of full time year 2 Integration Specialist.*

Attachments

References

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SMS Technological Learning Project

We Believe

- Next Generation Learning accelerates educational innovation through applied technology to dramatically improve college readiness and completion in the United States ("Guiding Principles: NextGen Learning", 2014, p. 01).
- Education should be learner-centered.
- Students should be actively engaged in rigorous learning experiences.
- Instructor commitment, knowledge, and experience are vital to student success.
- Technology is an integral part of students' lives, expectations, and futures.
- Technology does not replace but instead augments sound teaching practices.
- Open Resources allow sharing of information and maximize options available to learners and educators.
- Data can support learners and educators in the successful design and implementation of learning environments.
- The iPad needs to have a purpose in the classroom and students need to know the purpose.

Key ideas taken from "Guiding Principles: NextGen Learning" and "iPads in the Classroom: Use, Learning Outcomes, and the Future"